RUMEX AND *POLYGONUM* IN COLOMBIA

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Rumex and *Polygonum*, of the family *Polygonaceae*, occur in some abundance both in Colombia and in the United States, and this paper is an attempt to correlate a study of the Colombian plants with what has been observed in the United States. Through the courtesy of Dr. William R. Maxon, Curator, the facilities of the United States National Herbarium have been made available, and this work has been financed by the Wisconsin Alumni Research Foundation of Madison, Wisconsin. The writer's collections and field observations were made in Colombia from March to December, 1944, during such times as would not interfere with his work for the Colombian Cinchona Mission. Mr. E. P. Killip, Dr. F. R. Fosberg and Mr. Joseph Ewan have given me the benefit of their experience in South American botany to make a number of helpful suggestions.

Locations of cited specimens are indicated by use of the abbreviations selected for the Index Herbariorum (Chronica Botanica **5**: 142-150. 1939), as follows: United States National Herbarium, Washington, D. C. (US); Britton Herbarium of the New York Botanical Garden, New York City (NY); the Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania (PH); and the Chicago Museum of Natural History, Chicago, Illinois (F). The abbreviation (Cin) is used to indicate collections made by members of the Colombian Cinchona Mission, under the direction of Dr. F. R. Fosberg; this material has not yet been distributed, but will be eventually, to the Instituto de Ciencias Naturales of the National University, Bogotá, Colombia, the Herbarium of the United States National Arboretum, and other institutions.

Rumex L.

K. H. Rechinger fil., Die süd- und zentralamerikanischen Arten der Gattung *Rumex,* Arkiv für Botanik, Band 26 A, No. 3: 1-58, plates 1-6. 1934, lists from Colombia only species no. 1 and no. 6 of the enumeration below.

a. Leaves mostly more than 10 cm. long, not lobed at base; flowers perfect.

  b. Plants from a stout rootstock; midribs of the inner sepals not inflated. .... 1. *R. tolimensis.*

  b. Plants with a taproot; midribs of most of the inner sepals inflated to form a fleshy tubercle.

    c. Inner sepals not long-toothed on the margins.

      d. Inner sepals 3-5 mm. wide in fruit. .... 2. *R. crispus.*

      d. Inner sepals 2 mm. wide in fruit. .... 3. *R. conglomeratus.*

    c. Inner sepals with long spreading teeth on the margins.....4. *R. obtusifolius.*

a. Leaves less than 10 cm. long, generally halberd-shaped, with 2 divergent pointed lobes; plants dioecious .... 5. *R. Acetosella.*

1. **Rumex tolimensis** Weddell.

CALDAS: Páramo del Quindío, 3700-4200 m., Aug. 15-20, 1922, *Pennell & Hazen 9965* (US; PH); Ruiz, savanas, 4000 m., *Schmidtchen* (Herb. Vienna, cited by Rechinger); Páramo del Ruiz, 2000-2800 m., Sept., 1884, *F. C. Lehmann 3173* (US); Páramo del Ruiz, 3700-4200 m., Dec. 26, 1936, *C. E. Chardon 5015* (US).

CAUCA: Páramo de Puracé, 3500 m., May 26, 1944, *Killip & F. C. Lehmann V. 38593* (US).

CUNDINAMARCA: Santa Fe [de Bogotá] (Herb. Kunth, cited by Rechinger); Páramo de Sumapaz, near headwaters of R. San Juan, north of Nevado de Sumapaz, 4000 m., Aug. 9, 1943, *F. R. Fosberg 20721* (Cin).

TOLIMA: Monte Tolima, *Goudot* (cited in original description).

R. tolimensis is a native species, endemic in the páramos of central Colombia. First described from the Nevado del Tolima, in the Central Cordillera, it is now known from the Eastern Cordillera but has not been discovered in the Western Cordillera.

Dr. F. R. Fosberg, who had the not entirely enviable experience of being lost for a week on the Páramo de Sumapaz (see Journ. N. Y. Bot. Gard. 45: 226-234. 1944), made the following notes on the appearance in the field of this species. "Perennial from a thick rhizome, sending up erect thick hollow stems with partitions at the nodes; leaves very large, with giant film-like transparent ocreae covering the huge conical bud, which is imbedded in a great mass of transparent jelly. These stems are 3-5 dm. tall until they send up a paniculate inflorescence up to 2 m. tall, which has leaf-like bracts. As this develops all the leaves at its base die. When the inflorescence ripens and dies, other shoots are sent up several dm. away but from a branch of the same rhizome."

The other species of *Rumex* in Colombia are adventive and found along roadsides, in waste land in the cities, on pastured ground, etc. (*).

2. **Rumex crispus** L.

ANTIOQUIA: Medellín, ca. 1500 m., May 30, 1930, *Archer 51* (US).

CUNDINAMARCA: Sabana de Bogotá, 2600 m., Dec. 29, 1938, *Cuatrecasas 459* (US; a piece of inflorescence seems to belong to this species, but the leaves, probably from a different plant, are *R. obtusifolius*).

CAUCA: Popayán, 1700-2000 m., *F. C. Lehmann 5789* (F).

3. **Rumex conglomeratus** Murray.

SANTANDER: vicinity of La Baja, 2700-3500 m., Jan. 14, 1927, *Killip & Smith 17160* (NY).

CUNDINAMARCA: damp ground, Sesquilé, ca. 8000 ft., Oct. 10, 1944, *Fassett 25887* (Cin); along rails of Ferrocarril del Norte just west of Bogotá, Sept. 26, 1931, *Ernestine Niemeyer 229* (US; plant immature, probably this species).

4. **Rumex obtusifolius** L.

According to Rechinger, *l. c.*, p. 46, the plant adventive in South America is ssp. *agrestis* (Fries) Danser.

SANTANDER: roadside in the town, Vélez, 7121 ft., July 5, 1944, *Fassett 25464* (Cin).

(*) *Rumex tolimensis* Wedd. is represented in the Colombian National Herbarium by *R. Jaramillo & A. Dugand Jr. 253* from Cundinamarca: Lagunas de Chisacal, N. of Páramo de Sumapaz, 3000-3500 m., Sept. 5, 1944. According to the collectors the plant is quite common in the region; it grows to a height of 1.80 meters and is generally found in boggy places; the large bud is covered with abundant jelly-like substance. The common name is "*Ijuacá*".—EDITOR.

ANTIOQUIA: Fredonia, 1850 m., Aug. 2, 1930, *Archer 543* (US); Titiribí, vicinity of Medellín, Aug. 20, 1927, *Rafael A. Toro 360* (NY; marked "? subsp. *agrestis*" by Rechinger in 1932); Los Micos, Medellín, Dec. 18, 1927, *Toro 827*, (NY; marked "subsp. *agrestis*" by Rechinger in 1932).

CUNDINAMARCA: along rails of Ferrocarril del Norte just west of Bogotá, Sept. 26, 1931, *Ernestine Niemeyer 226* (US); Sabana de Bogotá, 2600 m., Dec. 29, 1938, *Cuatrecasas 459* (US; see citation under *C. crispus*); weed in cultivated land, Vereda de Rozo, 4 km. S. of Cota, 30 km. N. W. of Bogotá, 8430 ft., Aug. 27, 1944, *Fassett 25651* (Cin); same locality and date, *Fassett 25652* (Cin).

CALDAS: Termales, Acimaipa, 2800 m., Aug., 1935, *Dryander 2749* (US).

CAUCA: Cord. Central, Puracé, in Páramo, 3450 m., Feb., 1938, *Kjell von Sneidern 1766* (NY, F).

5. **Rumex Acetosella** L.

SANTANDER: Páramo de Vetas, 3400-3700 m., Jan. 16, 1927, *Killip & Smith 17416* (US, PH).

CUNDINAMARCA: Sabana de Bogotá, in ditches, 1919, *Bro. Ariste-Joseph A898* (US); near Bogotá, 2800 m., 1915, *Roberto Macdonald* (US); Bogotá, June 10, 1929, *Rafael A. Toro 19* (NY); Sabana de Bogotá, Quebrada de Chicó, 2650 m., June 1, 1939, *Cuatrecasas 5183* (US); Salto de Tequendama, forest, 2500 m., Oct. 1-3, 1938, *Cuatrecasas 126* (US); Mosquera, 1919, *Ariste-Joseph A897a* (US).

CAUCA: forest, "Canaán", Mt. Puracé, June 11-13, 1932, *Pennell & Killip 6589* (US, PH); clearing, divide between the Cauca and La Plata drainages, N. of Volcano Puracé near Laguna San Rafael, marshy páramo, flat and rather brushy in spots, 11200 ft., Nov. 26, 1944, *Fosberg 22344* (Cin).

META: Río Arroz, S. E. slopes of Páramo de Sumapaz, 11200 ft., Aug. 16, 1943, *Fosberg 20838* (Cin).

Polygonum [Tourn.] L.

By some writers the sections of this genus are considered as separate genera; under such a treatment the first species in the following enumeration would fall into the genus *Tracaulon*, the last into *Polygonum*, and the others into *Persicaria*.

a. Flowers in terminal spikes.

b. Stems retrorse-prickly at least near the nodes; leaves long-triangular, truncate or sagittate at base; spikes terminating slender dichotomous branches. .... 1. *P. Meisnerianum.*

b. Stems not retrorse-prickly; leaves tapered at base; spikes solitary or terminating alternate branches.

c. Leaves about twice as long as wide, abruptly narrowed to a winged petiole. .... 2. *P. nepalense.*

c. Leaves several times as long as wide, tapering to a short petiole or narrow base.

d. Spikes loose and slender, the ocreolae rarely overlapping.

e. Sepals not gland-dotted. .... 3. *P. hydropiperoides.*

e. Sepals dotted with brown glands. .... 4. *P. punctatum.*

d. Spikes dense, the flowers crowded and ocreolae mostly overlapping.

f. Spikes rarely more than 3 cm. long; plants usually terrestrial with stems sometimes decumbent at base but not long-trailing; leaves usually 10 cm. or less long.

g. Peduncles glabrous; flowers about 2 mm. long.

h. Cilia about as long as the ocreolae; leaves with scattered coarse appressed hairs on the upper surface. .... 5. *P. caespitosum.*

h. Cilia shorter than the ocreolae or absent; leaves glabrous above except sometimes on the midrib. ......6. *P. Persicaria.*

g. Peduncles with stalked glands; flowers 3-4 mm. long .... 7. *P. segetum.*

f. Spikes 3-10 cm. or more long; plants aquatic or on wet soil, often with long stout trailing stems; leaves 10-30 cm. long.

i. Peduncles with stalked glands, sometimes hirsute also.

j. Ocreae with flaring green margins. .... 8. *P. hispidum.*

j. Ocreae without green margins. ...... 9. *P. caucanum.*

i. Peduncles with sessile glands or none, sometimes hirsute.

k. Peduncles densely hirsute; ocreae margined with stiff bristles which are often 1 cm. or more long. .... 10. *P. acuminatum.*

k. Peduncle glabrous or slightly hirsute, or with sessile glands; ocreae eciliate or with short cilia.

l. Achenes 2.0-2.5 mm. long; leaves not lanate. .... 11. *P. densiflorum.*

l. Achenes 3.0-3.5 mm. long; leaves (in Colombian specimens) densely white-lanate beneath. .... 12. *P. ferrugineum.*

a. Flowers solitary or few in the leaf-axils. .... 13. *P. striatum.*

1. **Polygonum Meisnerianum** C. & S., var. **Beyrichianum** C. & S.

ANTIOQUIA: San Pedro, June, 1938, *Bro. Tomás 248* (US); Río Negro, 2100 m., June 22, 1930, *Archer 272* (US).

CUNDINAMARCA: La Uribe, April 3, 1935, *H. García B. 3042* (US); growing in ditch, Uribe, April 3, 1935, *Archer 3276* (US).

The Colombian collections are all to be referred to this variety which has the internodes nearly glabrous or with bristles 1 mm. or less long, and is glandular only in the inflorescence; it has been collected in nearly every South American country and occurs northward to Lousiana and Texas. The typical *P. Meisnerianum,* which has the stems with bristles more numerous and mostly more than 1 mm. long, mixed with glands, appears to have been collected only in Brazil and Argentina.

2. **Polygonum nepalense** Meisn.

CUNDINAMARCA: El Dintel, entre Facatativá y La Vega, 2300-2700 m., June 4, 1939, *Pérez-Arbélaez & Cuatrecasas 5256* (US); Macizo de Bogotá, Quebrada de Chicó, 2650-2750 m., June 1, 1939, *Cuatrecasas 5185* (US); Usaquén, 2600 m., Nov., 1931, *Pérez-Arbeláez 604* (US); Vereda de Rozo, 4 km. S. of Cota, Sabana de Bogotá, 30 km. N. W. of Bogotá, 8430 ft., Aug. 27, 1944, *Fassett 25656 & 25658* (Cin); headwaters of R. Seco, 2750 m., headwaters of Río Subia, 5 km. S. W. of Charquito, 2 km. N. E. of Granades, July 25, 1944, *Fosberg 22039* (Cin).

This is widely distributed in eastern Asia and in Africa (cf. Steward, Contrib. Gray Herb. no. 88: 75. 1930) and appers as a weed in Colombia.

3. **Polygonum hydropiperoides** Michx.

The collections in Colombia appear in two different forms, which may be placed in two varieties in Stanford's revision of this species. It seems best to identify the collections with these two varieties, at least temporarily, until a greater abundance of material, from North America as well as South America, makes possible further study of *P. hydropiperoides,* a species which appears to have developed a remarkable number of local variations.

Polygonum hydropiperoides var. **Bushianum** Stanford, Rhodora 28: 27. 1926.

Leaves 8-10 m. long; ocreolae with cilia 1-2 cm. long.

CUNDINAMARCA: Laguna de Fúquene March, 1930, *Pérez-Arbeláez 74* (US).

ANTIOQUIA: Titiribí, vicinity of Medellín, Aug. 20, 1927, *Rafael A. Toro 346* (NY).

CAUCA: Popayán, *Lehmann 511* (NY).

This variety was originally described from Oklahoma.

Polygonum hydropiperoides var. **macerum** Stanford l. c., 26.

Leaves 5-6 cm. long; ocreolae with cilia 1 mm. or less long.

CUNDINAMARCA: damp ground, Sesquilé, ca. 8000 ft. Oct. 10, 1944, *Fassett 25888* (Cin); wet meadows, 2600-2700 m., S. W. of Las Cruces, Bogotá, Sept. 24, 1917, *Pennell 2165* (NY).

CAUCA: highlands of Popayán, 1600-2200 m., *Lehmann 5787* (US).

This variety was originally described from Florida.

4. **Polygonum punctatum** Ell. var. **aquatile** (Mart.) Fassett, n. comb.

Polygonum antihaemorrhoidale f. *aquatile* Mart., Reise 550. 1828.

Polygonum antihaemorrhoidale β *aquatile* Mart., Linnaea 1939, Litt. 41. 1830.

Polygonum acre α *aquatile* Meisn. in Mart. Fl. Bras. V, pt. 1, Polyg. 18, t. 5, fig. 1. 1855.

Polygonum acre β *leptostachyum* Meisn. in DC. Prodr. 14: 108. 1856 in large part, not of American authors.

ATLANTICO: Barranquilla and vicinity, Aug., 1927, *Bro. Elías 299* (US).

NORTE DE SANTANDER: wet ravine, headwaters of Quebrada Bagueche, above Arboledas, 5700 ft., April 10, 1944, *Fassett 25044* (Cin).

SANTANDER: vicinity of California, 2000 m., Jan. 11-27, 1927, *Killip & Smith 17023* (US); Mesa de los Santos, 1500 m., Dec. 11-15, 1926, *Killip & Smith 15117* (US); marshy land, Puerto Wilches & vicinity, 100 m., Nov. 28-Dec. 2, 1926, *Killip & Smith 14801* (NY); weed near finca on west side of mountain, 8000 ft., Zapatoca, July 23, 1944, *Fassett 25512* (Cin).

ANTIOQUIA: Rionegro, Dec., 1933, *Daniel* (NY); vicinity of Medellín, March 19, 1927, *Toro 81* (NY).

CHOCO: Quibdó, Río Atrato, ca. 60 m., April-May, 1931, *Archer 1855* (US).

CALDAS: Río Navarco, Salento, 1400-1500 m., July 31, 1922, *Pennell 9093* (US).

CUNDINAMARCA: between Bogotá and Fontibón, *Ariste-Joseph* (US); between Anolaima and Cachipay, April 17, 1925, *Archer 3312*

(US); San Bernardo, valley of Río Negro, 6000 ft., Sept. 5, 1943, *Fosberg 21000* (Cin); Barrio de San Cristóbal, Bogotá, 8700 ft., Dec. 10, 1944, *Fosberg 22408* (Cin); Bogotá, Oct. 20, 1852, *Holton 275* (NY).

TOLIMA: "La Trinidad", Líbano, 1000-1200 m., Dec. 21-25, 1917, *Pennell 3206* (US).

VALLE: Obando, April 3, 1935, *Archer 3351* (US).

CAUCA: Popayán, 1750 m., Feb. 23, 1937, *von Sneidern 1140* (NY, F); ad pag. El Tambo, in ripa fluminis, 1700 m., April 17, 1936, *von Sneidern 608* (NY, F); La Paila, 7 May, 1853, *Holton 274* [ocreae nearly eciliate] (NY).

HUILA: Villavieja to Neiva, 500-550 m., July 27, 1917, *Rusby & Pennell 385* (US); mud and gravel flats along Río Ambica, at Colombia just above confluence with Río Cabrera, 3000 ft., Dec. 15, 1942, *Fosberg 19348* (Cin).

META: along Río Guatiquía, near Villavicencio, 500 m., March 18 & 19, 1939, *Killip 34503* (US).

It has been pointed out by Stanford, Rhodora 19: 77. 1927, that *P. punctatum* Ell. almost certainly antedates *P. acre* HBK. The typical variety is in the United States, especially southward, while var. *aquatile* ranges from tropical Florida through the West Indies and South America. The differences between the two are mainly in habit and are not always evident in some herbarium specimens that show only the tops of plant. In general, var. *typicum* has the erect or ascending stems freely branching, often at nearly every node in the upper part of the stem, while each branch of the inflorescence comes from the axil of a leaf with a well-developed blade. In var. *aquatile* the erect or ascending branches are usually simple, while the terminal inflorescence often forks from a node which is naked except for an ocrea; an occasional plant forks above into a sterile and a fertile branch. The long-exserted often forking inflorescence, and long naked flowering branches from the tip of the plant, give var. *aquatile* a different appearance from the more northern plant, although there is no question but that the two do run together.

In the northern United States many individuals have simple stems, but they belong to a variety which is annual, with little or no tendency to root at the nodes, and with both lenticular and trigonous achenes on the same plant or with all lenticular achenes, while both var. *typicum* and var. *aquatile* are perennials with long prostrate bases rooting at the nodes, and all trigonous achenes, or rarely with a tetragonous achene.

The common phase of var. *aquatile* has the stipitate base of the perianth with flaring sides and is 0.5 mm., rarely to 0.75 mm., long. Less common, but scattered widely throughout its range, is an extreme with the stipitate base of the calyx very slender and from 1.0-1.5 mm. long; this form, which does not seem to have a parallel in any North American representative of the species, may be called:

Polygonum punctatum var. **aquatile** fma. **stipitatum**, n. fma., calyce basi gracili 1.0-1.5 mm. longa.

SANTANDER: Puerto Wilches and vicinity, 100 m., Nov. 28-Dec. 2, 1926, *Killip & Smith 14801* (US); wet places along road to Landázuri, Vélez, 8000 ft., April 17, 1944, *Fassett 25078* (Cin); wet spots on pastured hillside, "La Sabaneta", between La Paz and Vélez, 7200 ft., April 27, 1944, *Fassett 25144* (Cin); roadside weed, Jordán, 50 km. N. of Vélez, 3100 ft., May 19, 1944, *Fassett 25250* (**type** in Herb. University of Wisconsin, Cin).

ANTIOQUIA: Medellín, ca. 1500 m., May 30, 1930, *Archer 57* [sheaths and ocreolae almost eciliate, dots on calyx sparse and obscure] (US).

CUNDINAMARCA: Fusagasugá to Pandi, 1000-1300 m., Nov., 30, 1917, *Pennell 2738* (NY); along rails of Ferrocarril del Norte just west of Bogotá, Sept. 26, 1931, *E. Niemeyer 227* (US); Simijaca, 2000 m., May, 1930, *Pérez-Arbeláez 278* (US): moist spot under a tree in a pasture, Vereda de Rozo, 4 km. S. of Cota, 30 km. N. W. of Bogotá, 8430 ft., August 27, 1944, *Fassett 25668* (Cin).

CALDAS: Acimaipa, 2800 m., Aug., 1944. *Dryander 2771* (US).

CAUCA: June, 1883, *Lehmann 2805* (US).

META: Villavicencio, toward El Parrao, 500 m., Nov. 10, 1938, *Cuatrecasas 4634* (US).

From three localities in Colombia mass collections were made; each one consisted of a single stem showing leaves and inflorescence from each of several clones in one locality. Study of these mass collections shows that var. *aquatile* and its f. *stipitatum* may grow together in one place. A mass collection from Florián, Dept. Santander, Sept. 10, 1944, *Fassett 25765,* consists of 25 individuals of *aquatile* and 10 *stipitatum;* from "La Sabaneta", between Vélez and La Paz, Dept. Santander, April 27, 1944, *Fassett 25046,* consists of 10 individuals of *aquatile* and 18 of *stipitatum* (on one of the latter a 4-angled achene was observed); from Sesquilé, Dept. Cundinamarca, Oct. 10, 1944, *Fassett 25889,* consisting of 10 of *aquatile* and 2 of *stipitatum.*

5. **Polygonum caespitosum** Blume.

With great hesitation, three colections are tentatively referred to this species.

BOYACA: bank of Río Susacón, 14 km. S. W. of Susacón, 10,700 ft., April 5, 1944, *Fassett 25025* (Cin).

CUNDINAMARCA: weed in cultivated land at foot of Cerro de Monserrate, Bogotá, 8800 ft., Oct. 8, 1944, *Fassett 25878* (Cin); wet meadow, southwest of Las Cruces, Bogotá, 2600-2700 m., Sept. 24-25, 1917, *Pennell 2152A* (US; this number in NY is *P. punctatum*).

The Pennell specimen is rather similar to *P. Persicaria* but has the cilia of the ocreae 5 mm. long and those of the ocreolae about the same length. The Fassett specimen from Bogotá is more extreme, with prostrate stems whose internodes are only 1-2 cm. long, the leaves 2-3 cm. long and strigose on both surfaces, the ocreae have coarsely strigose surfaces and cilia 5 mm. long, the cilia of the ocreolae are 2-6 mm. long, often exceeding the ocreolae themselves, and the achenes are all trigonous. The plants from Boyacá are dwarfed and creeping, with hispid leaves only 1-2 cm. long, ocreae hispid and with cilia 2 mm. long, flowering spikes 6 mm. or less long, and cilia of the ocreolae 2 mm. long.

Future accumulation of more material may throw light on the identity of these anomalous plants. *P. caespitosum* is recorded by Steward, Contrib. Gray Herb. 88: 66-67. 1930, from tropical and subtropical Asia.

6. **Polygonum Persicaria** L.

CUNDINAMARCA: wet meadow, S. W. of Las Cruces, Bogotá, 2600-2700 m., Sept. 24-25, 1917, *Pennell 2152* (US; *2152B* in NY).

7. **Polygonum segetum** HBK.

BOYACA: Duitama, Dec. 10, 1929, *Rafael A. Toro 30* (NY).

CUNDINAMARCA: Bogotá, Oct. 20, 1852, *Holton* (NY); Vitelma, above San Cristóbal, Bogotá, 8800 ft., Jan. 6, 1943, *Fosberg 19672* (Cin); Barrio de San Cristóbal, Bogotá, clay pit with pools of water grazed by donkies, 8700 ft., Dec. 10, 1944, *Fosberg 22414* (Cin); Santuario, west shore of Laguna de Fúquene, 22 km. N. of Ubaté, 2650 m., Dec.

8, 1943, *Fosberg & Hermann 21393* (Cin); Bogotá, Aug., 1931, *Pérez-Arbeláez 1140* (US); eastern páramos of Guasca, toward Gachetá, 1921, *Ariste-Joseph* (US); weed in corn-field, Vereda de Rozo, 4 km. S. of Cota, 30 km. N. W. of Bogotá, 8430 ft., Aug. 27, 1944, *Fassett 25657* (Cin); fields N. E. of Gachancipá, June 6, 1944, *Fassett 25300* (Cin).

ANTIOQUIA: Medellín, ca. 1500 m., Dec. 15, 1930, *Archer 725* (US, NY).

This species was originally described as "Crescit in alta planitie Andium Novagranatensium prope Santa Fe de Bogotá in agris humidis inter segetes."

8. **Polygonum hispidum** HBK.

MAGDALENA: Santa Marta, 100 ft., March, 1898-1901, *Herbert H. Smith 1343* (US; *Smith 1345* in NY & F).

BOLIVAR: muddy pool margin, 90-100 m., Cañabetal, Jan. 15, 1918, *Pennell 3880* (US, NY); edge of Dique, Soplaviento & vicinity, 5-10 m., Nov. 16, 1926, *Killip & Smith 14570* (US, NY, F); Magangué, 40-45 m., Jan. 18-19, 1918, *Pennell 3961* (NY).

CUNDINAMARCA: grows always in shallow water, Tocaima, April 19, 1935, *Archer 3343* (US); Tocaima, 1933, *Pérez-Arbeláez 2581* (US).

VALLE: Thickets near Río Cauca, northeast of Cali, 1000 m., March 31, 1939, *Killip & Varela 34699* (US); Hoya del Valle del Cauca, 1000 m., *Duque 1584* (US); edge of pool, Quebrada Nueva to Cuchilla, east of Zarzal, Canan Valley, 1100-1300 m., July 21-22, 1922, *Pennell, Killip & Hazen 8481* (NY).

CAUCA: 1000 m., June, 1883, *Lehmann 2893* (US); La Paila, June 2, 1853, *Holton* (NY).

9. **Polygonum caucanum** Fassett, n. sp., caulibus pedunculisque glandulosis-hispidis; ocreis glandulosis, marginibus eciliatis vel cum ciliis ad 1 mm. longis; foliis 1-2 dm. longis, angustatis aequaliter ad basin apicemque, hispidis in marginibus nervisque; spicis 3-8 cm. longis; ocreolis rubescentibus, subcoriaceis, glabris; floribus 3 mm. longis.

Stems, peduncles, ocreae and lower surfaces of midribs of leaves with copious minute stalked glands; ocreae glabrous except for the glands, the margins eciliate or with cilia 1 mm. or less long; leaves 1-2 dm. long, tapering nearly equally to each end, finely hispid on veins and margins; spikes 3-8 cm. long; ocreolae reddish, of firm texture, glabrous; flowers 3 mm. long, with 6 stamens; nutlets not seen.

Sümpfe in Cauca, 1000 m., June, 1883, *F. C. Lehmann 2889* (**type** in U. S. National Herbarium).

Lehmann's field notes read: "2889. Flowers flesh-pink. In marshes in the Cauca Valley, 1000 m." This species appears to belong to a group in the subgenus *Persicaria* which is largely aquatic and subaquatic; it is set off most clearly by the copious stalked glands on the stems and peduncles. The single sheet seen consisted of the upper part of a plant only, and we can only speculate as to whether the lower part of the stem is aquatic or terrestrial, creeping or erect, glandular or glabrous.

10. **Polygonum acuminatum** HBK.

ANTIOQUIA: aquatic, Los Alpes, July, 1934, *Bro. Daniel 379* (US); Rionegro, December, 1943, *Bro. Daniel 3697* (US).

CUNDINAMARCA: Laguna de Fúquene, ca. 2000 m., March, 1930, *Pérez-Arbeláez 72* (US).

VALLE: aquatic herb, Guanabanal, 1020-1040 m., June 2, 1922, *Killip 6229* (US, NY).

CAUCA: Ciénaga de Agua Blanca, below Cali, 900 m., January, 1906, *Pittier 975* (US).

11. **Polygonum densiflorum** Meisn. (*P. portoricense* Bert.; see Weatherby, Rhodora 25: 20. 1923).

Meisner divided this species into var. *α imberbe*, with eciliate ocreae, from Louisiana, Puerto Rico, French Guiana, Perú and Chile, and var. *β ciliolatum*, with ciliate ocreae, seen by him only from Brazil. But subsequent collections show that plants with ciliate ocreae, while greatly in the minority, are widely distributed within the range of the species, from Virginia (*Fernald, Long & Fogg 4872*), Florida (*Blanton 6769*, and *Chapman s. n.*), Cuba (*Shafer 99*), Venezuela (*Pittier 8211*), and Brazil (*Pickel 2374*). Consequently they seem better treated as **P. densiflorum** f. **imberbe** (Meisn.) Fassett, n. comb. (*P. densiflorum* var *α imberbe* Meisn. ex DC., Prodromus 14: 121. 1864) and **P. densiflorum** f. **ciliolatum** (Meisn.) Fassett, n. comb., (*P. densiflorum* var. *β ciliolatum* Meisn., *l. c.*).

P. densiflorum f. **imberbe** (Meisn.) Fassett.

MAGDALENA: Santa Marta, east of Ciénaga, Sept. 11, 1898-1901, *Herbert H. Smith 546* (US, NY, PH, F); Santa Marta, Sept. 1, 1898-

1901, *Smith 547* (NY); swamp 5 miles south of Mamatoca (= Mamatoco), Santa Marta, 100 ft., Nov. 27, 1898-1901, *Smith 1500* (US, NY, PH, F); swampy land by the river Buritaca close to the sea, Santa Marta, Sept. 24, 1898-99, *Smith 2825* (NY). Some of these sheets do not carry all information, and data have been assembled from the same number as represented in several herbaria.

P. densiflorum f. **ciliolatum** (Meisn.) Fassett.

ATLANTICO: Barranquilla and vicinity, August, 1927, *Bro. Elias 293* (US), and July, 1934, *Elias 1222* (US, F), and July, 1937, *Elias 1544* (NY, US, F).

VALLE: thickets near Río Cauca, northeast of Cali, 1000 m., March 31, 1939, *Killip & Varela 34698* (US).

12. **Polygonum ferrugineum** Wedd., var. **incanum** (Meisn.) Small, Bull. Torrey Club 19: 359, 1892. (*P. spectabile* Mart., var. *incanum* Meisn.).

ATLANTICO: Barranquilla, 1925, *Bro. Paul B-18* (US).

BOLIVAR: Magangué, 40-45 m., Jan. 18-19, *Pennell 3960* (US, NY).

13. **Polygonum striatum** Meisn.

BOYACA: salt flats, bank of dry depression, Paipa, May 6, 1944, *Fosberg 21890* (Cin). This collection seems a fair match for material of *P. striatum* from Chile, and is tentatively identified with it, although when the South American members of the *Avicularia* group are better understood it will probably prove to belong to a different species, quite possible new.

The plants from Paipa have the following characters: Taproot stout and woody; stems woody below, subherbaceous above, mainly erect, prostrate where trampled by cows; branches slender, simple, with leaves crowded toward the tip and falling from the middle and lower part; internodes 1.5 cm. or less long, coarsely striate; ocreae firm and conspicuously veined toward the base, scarious and light brown toward the apex, the scarious portion bleaching and disintegrating with age, the basal portion persisting on the middle and lower nodes; leaves linear-lanceolate, about 1.5 cm. long, thick and heavily veined, contracted at base to a petiole-like stipe above the ocrea; flowers apparently solitary in the upper leaf-axils; pedicels included, the flowers half hidden among the crowded ocreae; fruiting calyx 2.5 mm. long, completely investing the trigonous shining achene.